REMARKS

At the outset, Applicants wish to note that a supplemental information disclosure statement was timely filed on November 30, 2007, and the information contained therein should be considered with the present amendment and made of record in the file of this application.

Applicants have amended the claims and the drawings to more particularly define the invention in view of the outstanding Official Action. The drawings have been corrected as requested in the Official Action as has been the claims. Applicants most respectfully submit that all of the claims now present in the application are in full compliance with 35 USC 112 and are clearly patentable over the references of record.

The objection to the drawings because Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated has been obviated in view of the amendment to the drawing. Applicants have amended Figure 1 in accordance with the Examiner's requirement. Accordingly, it is most respectfully requested that this objection be withdrawn.

The objection to claims 1, 3, 4, 6, 11, 22, 26 and 36 because of the informalities set forth on pages 2 and 3 of the outstanding Official Action has been carefully considered but is most respectfully traversed in view of the amendments to these claims. Applicants have amended claims 1, 3, 4, 6, 11, 22, 26 and 36 as requested by the Examiner. Accordingly, it is most respectfully requested that this objection be withdrawn.

The rejection to claims 1-39 under 35 USC 102(b) as being anticipated by Cho has been carefully considered but is most respectfully traversed in view of the following comments. This is the only prior art rejection and there is no rejection on the grounds of obviousness.

Applicants wish to direct the Examiner's attention to MPEP § 2131 which states that to anticipate a claim, the reference must teach every element of the claim.

> "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently

> described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed.Cir. 1990).

In this regard, the present invention of claim 1 relates to an electric field emission device having a triode structure which includes a supporting substrate, a bottom electrode layer, a gate insulating layer, a gate electrode layer, an alumina layer, a top electrode layer deposited in that order, and further includes a plurality of emitters,. Another electric field emission device of claim 6 includes an anode insulating layer instead of the alumina layer. The present inventions of claims 11 and 26 relate to methods for fabricating the electric field emission device of claims 1 and 6, respectively.

The object of the present invention is to arrange micro holes, in which the emitters are accommodated, at regular intervals even on a large area, and to form a tip of each of the emitters to be close to the gate electrode layer and the top electrode. Such a configuration decreases a driving voltage for the electric field emission device.

Cho (KR 10-2002-0041665) discloses an electric field emission device having a triode structure fabricated by steps of depositing a cathode electrode (or a lower substrate) 11, a resistive layer 19, an insulating layer 12, a gate electrode 13 and an aluminum layer 14 on a substrate 10 in that order; forming a plurality of micro holes 24 by performing an anode oxidation process on the aluminum layer, by which the aluminum layer 14 is turned into an alumina layer 15; forming a plurality of insulating holes 25 below the micro holes 24; removing the alumina layer 15 by performing a wet etching process; forming each of emitters in each of the insulating holes 25 by using metal 23 or carbon nano-tube 17; and depositing an anode electrode 21 thereon and disposing an upper substrate 27 thereon.

As recited in claims 1 and 11, the alumina layer is formed on every gate electrode layer. Similarly, as recited in claims 6 and 26, the anode insulating layer is

formed on every gate electrode layer. That is, there does not exist void space on the gate electrode layer.

Meanwhile, as shown by Fig. 8 of Cho, it is important that not every gate electrode 13 has thereon such a layer as the alumina layer or the anode insulating layer. Some gate electrodes 13 have void space thereon and others have spacers 20 thereon. Accordingly, the configuration claimed by the independent claims 1, 6, 11 and 26 is different from such a configuration as disclosed by Cho.

In respects of shapes and functions, the spacer 20 of Cho is completely different from the alumina layer or the anode insulating layer which is formed in a shape of layer by deposition. It is necessary to be noted that the electric field emission device of the present invention works more efficiently, as a distance between the top electrode layer and the emitter becomes closer. The reason of the above is that the efficiency depends on a distance that electrons emitted from the emitter move.

In case of the present invention, the layer formed on the gate electrode layer, i.e., the alumina layer or the anode insulating layer can be formed in thickness from several nanometers to several hundred micrometers by deposition. However, in case of Cho, the spacer 20 is fabricated separately, and then, disposed on the gate electrode 13; and thickness of the spacer 20 is from several ten micrometers to several millimeters. Accordingly, electrons emitted from the emitters of Cho moves 10^3 times longer than that of the present invention. Consequently, the device of Cho works less efficiently than that of the present invention.

According to the independent claims 1, 6, 11 and 26, one micro hole is surrounded by the bottom electrode layer, the gate insulating layer, the gate electrode layer, the alumina layer (or the anode insulating layer) and the top electrode layer, and thus, micro holes are formed separately from each other. Further, each of the emitters is formed in one micro hole. Accordingly, while electrons emitted from one emitter move to the upper electrode layer, the electrons are not affected by other electrons emitted from other emitters. Therefore, movement of electrons emitted from each of the emitters can be controlled independently by controlling each of the gate electrode layers. The above features lead to improving an electron focusing function.

Meanwhile, as shown in Fig. 8 of Cho, since there is void space over the emitters

23 and the gate electrodes 13, the void space is formed not being separated. That is, the region where electrons emitted from each of emitters 23 move is common and the electrons affect each other. Therefore, controlling movement of electrons cannot be performed and the electric field emission device of Cho works less efficiently and accurately than that of the present invention. It is noted that the above differences make the present invention new and patentable over Cho.

Consequently, Cho fails to disclose or even suggest all limitations and features of the independent claims, and thus, the grounds of the rejections are unsustainable and required to be withdrawn. Further, dependent claims are allowable for the same reason indicated with respect to the independent claims and further because of the additional features recited therein. Accordingly, it is most respectfully requested that this rejection be withdrawn.

In view of the above comments and further amendments to the drawings and claims, favorable reconsideration and allowance of all the claims now present in the application are most respectfully requested.

Respectfully submitted,
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Amendments to the drawings:

The attached sheet of drawings includes changes to Figure 1.

Attachment: Replacement Sheet